BNL Gas Storage Achievements, Research Capabilities, Interests, and Project Team

Metal hydride gas storage

Cryogenic gas storage

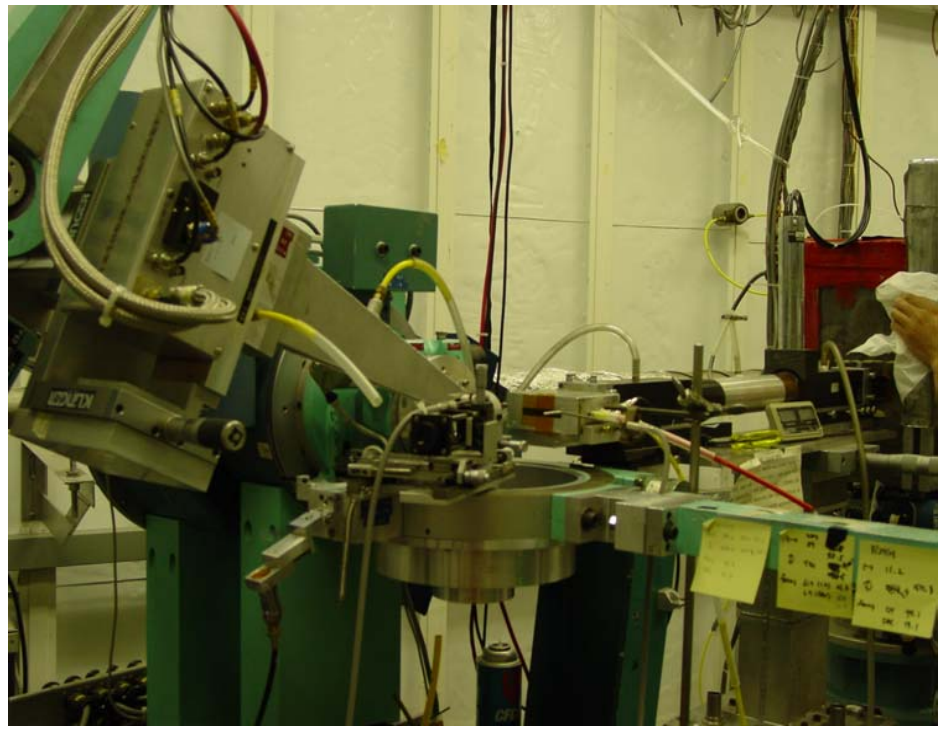
Compressed gas storage

Adsorbed gas storage

Selected BNL Research Capabilities
htpp://intranet.bnl.gov

- **National Synchrotron Light Source**
  User Facility with 70 beamlines; over 2500 scientists and 400 institutes participating in multidisciplinary research

- **Center for Functional Nanomaterials**
  Premier User Facility for conducting research on nanomaterials; now accepting proposals



Beamline 7A-Xray Diffractometer

- **Material Science Department**
  Property studies of material and structure defects

- **Energy Science and Technology Department**
  Six fully-instrumented hydride stations and complete processing facility for hydride research

BROOKHAVEN NATIONAL LABORATORY

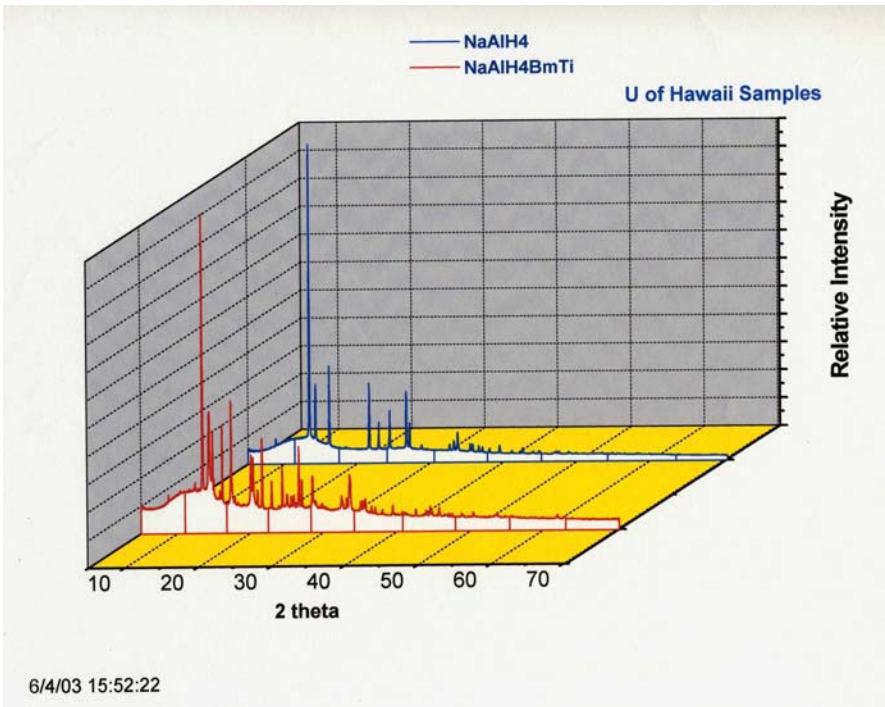
BNL Current Research in Hydrogen Storage

- **Complex metal hydride processing**

  Hydrogen driven metallurgical reactions for in-situ control of grain sizes
  Novel ball milling for lowering cost and improving production rates

- **Reversible borohydrides**

  Cooperative effort between Sandia (Gary Sandrock) and BNL



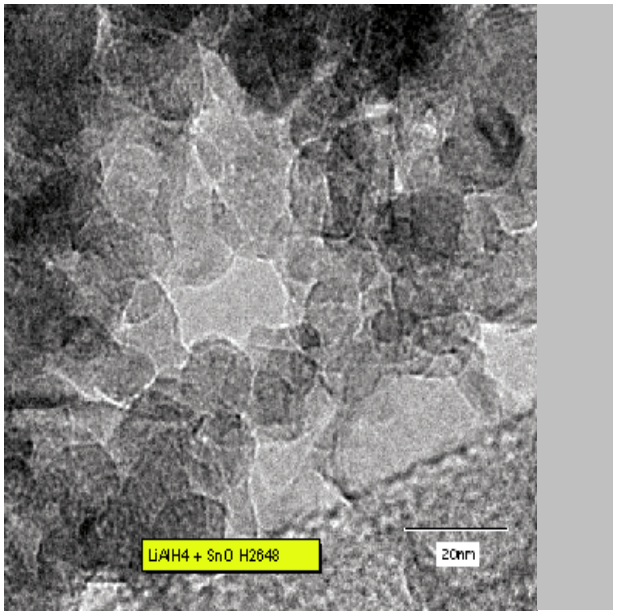
- **Physical/Chemical Material Characterization**

  e.g. Xray diffraction of alanate samples provided by University of Hawaii

- **Chemical Storage of Hydrogen**

  Catalysts for low temperature water gas shift; highly dispersed caged catalysts for methanol decomposition

BNL Complex Metal Hydride Project Team



$LiSn_x$ + Al+Li_2O Nano-Composite Electrode Material STEM Material Science Department

- **Dr. James Wegrzyn (ES&T)** Project Manager
- **James Reilly (ES&T)** Nanocomposite metal hydride; 95 papers and 17 patents
- **Dr. Gary Sandrock (Sandia)** Consultant; over 100 hydride papers and patents; Author IEA/DOE/SNL Hydride Database; US Annex 17 Representative
- **Dr. John Johnson (ES&T)** Lab Manager; over 70 publications and 29 years of hydride laboratory experience
- **Dr. Masaki Suenaga (Material Science)** Senior Scientist; fabrication and characterization of High T_c superconductors; HRSTEM
- **Dr. Thomas Vogt (Physics)** Senior Scientist; over 100 publications in neutron and X-ray powder diffraction

BNL Goals, Strengths, and Funding Sources

- **Goals:**
  - FY 2006 Determine feasibility of complex metal hydrides to meet DOE targets
  - FY 2010 Better than 2kwh/kg of delivered hydrogen (6% by system wt.)

- **Strengths:**
  Expertise in complex metal hydrides, novel synthesis processing techniques, and User Facilities for material characterization studies

- **Funding:**
  BNL Laboratory Directed R & D Initiative - LDRD
  EERE Hydrogen Storage "Virtual Lab" Program